ipd4300mdgridipTES-10

Defense Information Infrastructure (DII)
Common Operating Environment (COE)

Installation Procedures (IP)
for the
Grid Field Database (MDGRID) Segment
of the
Tactical Environmental Support System Next Century
[TESS(NC)]
Meteorology and Oceanography (METOC) Database

Document Version 4.3

23 October 1998

Prepared for:
Naval Research Laboratory
Marine Meteorology Division
Monterey, CA

Prepared by:
Integrated Performance Decisions
Middletown, RI

Table of Contents

List of Figures

1 SCOPE

1.1 Identification

These Installation Procedures (IP) describe the installation of the Grid Field Database (MDGRID) segment, Version 4.2 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MDGRID is a DII COE *shared database* segment for the storage of grid field data. This software is designed to run under the Defense Information Infrastructure (DII) Common Operating Environment (COE), release 3.1, on a Hewlett-Packard computer running HP-UX 10.20.

1.2 System Overview

The software described in this document forms a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I — The local data fusion center and principal METOC analysis and forecast system (TESS(NC))
- NITES Version II — The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))
- NITES Version III — The unclassified aviation forecast, briefing, and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))
- NITES Version IV — The Portable subsystem composed of independent PCs/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))
- NITES Version V — Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users with METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous, networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is composed of six DII COE-compliant *shared database* segments. Associated with each shared database segment is an Application Program Interface (API) segment. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
Latitude-Longitude-Time (LLT) Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Climatology Data	MDCLIM	MACLIM

A typical client-server installation is depicted in Figure 1-1 on the next page. This shows the shared database segments residing on a DII COE database server, with a NITES I or II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using ANSI-standard Structured Query Language (SQL).

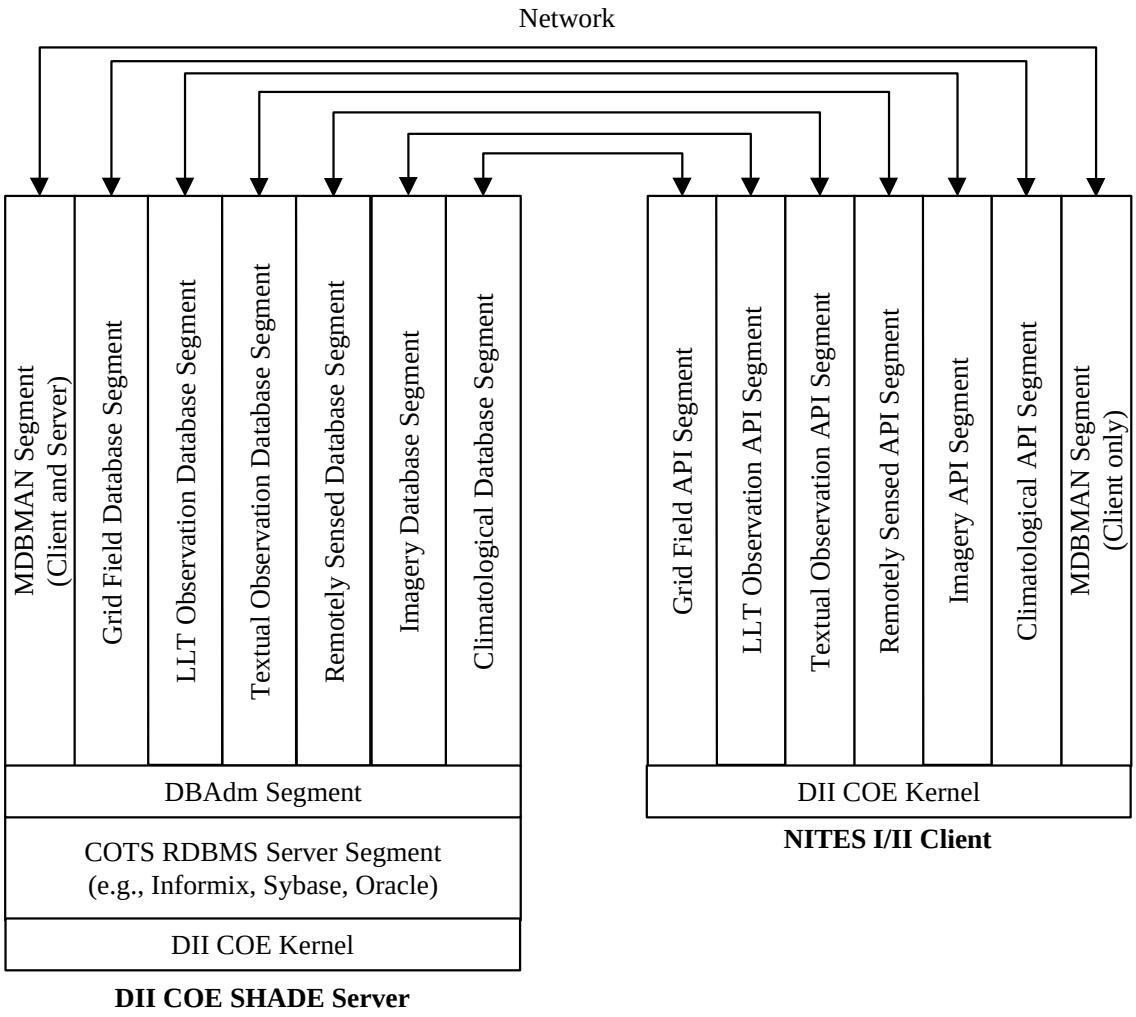

Figure 1-1. TESS(NC) METOC Database Conceptual Organization

The MDGRID segment deals with gridded METOC datasets. These fields provide forecaster with validation information for various atmospheric and oceanographic parameters. A dataset represents a logical collection of discrete grid field data records. The grid data records are logically organized with each other by grid model type and basetime. A grid data record contains descriptive information (element, level, forecast period, etc.) and the actual grid values.

2 REFERENCED DOCUMENTS

2.1 Government Documents

STANDARDS

MIL-STD-498 5 December 1994	*Software Development and Documentation*

SPECIFICATIONS

Unnumbered 5 December 1997	*Performance Specification (PS) for the Tactical Environmental Support System/Next Century TESS(3)/NC (AN/UMK-3)*
Unnumbered 30 September 1997	*Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(3)/NC] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

OTHER DOCUMENTS

Unnumbered 30 September 1997	*Database Design Description for the Tactical Environmental Support System/Next Century [TESS(3)/NC)] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC
DII.COE.DocReqs-5 29 April 1997	*Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 1.0*
ipd4500magridrmTES-10 23 October 1998	*Application Program Interface Reference Manual (APIRM) for the Grid Field API (MAGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*

ipd4500magridpmTES-10 23 October 1998	*Programming Manual (PM) for the Grid Field API (MAGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd4300mdgridsvdTES-10 23 October 1998	*Software Version Description (SVD) for the Grid Field Database (MDGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
DII.COE31.HP10.20.CIP 23 May 1997	*DII COE V3.1 HP 10.20 Consolidated Installation Procedures*
DII.3010.HP1020.KernelP1.IG-1 9 May 1997	*DII COE Kernel 3.0.1.0P1 Patch 1 for HP-UX 10.20 Installation Guide*
DII.3010.HP1020.KernelP2.IG-1 30 July 1997	*DII COE Kernel 3.0.1.0P2 Patch 2 for HP-UX 10.20 Installation Guide*
DII.3010.HP1020.KernelP3.IG-1 08 August 1997	*DII COE Kernel 3.0.1.0P3 Patch 3 for HP-UX 10.20 Installation Guide*
DII.3010.HP1020.KernelP4.IG-1 27 August 1997	*DII COE Kernel 3.0.1.0P4 Patch 4 for HP-UX 10.20 Installation Guide*
Unnumbered 02 January 1996	*GRIB (Edition 1)* *The WMO Format for the Storage of Weather Product Information and the Exchange of Weather Product Messages in Gridded Binary Form* U.S. Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Centers for Environmental Prediction Clifford H. Dey NCEP Central Operations

2.2 Non-Government Documents

World Meteorological Organization, Geneva, Switzerland

WMO-306	*Manual On Codes*

3 SYSTEM ENVIRONMENT

3.1 System Requirements

3.1.1 Hardware Requirements

The MDGRID segment is hosted on the Tactical Advanced Computer, TAC-3 (HP 750/755)/TAC-4 (HP J210)

The following configurations are recommended:

RAM: 128 MB minimum, 192 MB optimum
Disk Space: 2 GB
Swap Space: 300 MB

3.1.2 Operating System Requirements

HP-UX 10.20

3.1.3 Kernel Requirements

Kernel 3.0.1.0 with patches through P4

3.2 System and Site Preparations

3.2.1 System Configuration

The following software must be properly installed prior to loading the MDGRID segment:

- Appropriate operating system (as described above),
- Appropriate DII COE Kernel (as described above),
- DII COE Informix On-Line Dynamic Server segment (INFXOL), version 1.0.1.1/7.23
- DII COE DBAdm Account Group segment version 1.1.0.0
- DII COE DBAdmR segment version 1.1.0.2

3.2.2 Operating System Preparation

Information needed to prepare the operating system is found in these documents:

- DII COE V3.1 HP 10.20 Consolidated Installation Procedures
- DII COE Kernel 3.0.1.0P1 Patch 1 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P2 Patch 2 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P3 Patch 3 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P4 Patch 4 for HP-UX 10.20 Installation Guide

3.2.3 Tape/Disk Preparation

The MDGRID segment software is delivered on a 4 mm DAT cartridge for the TAC-3/TAC-4 hardware environment.

4 INSTALLATION INSTRUCTIONS

MDGRID is a component of a DII COE database system. The following procedures describe the installation of the MDGRID software.

4.1 Installation on TAC-3/TAC-4 Systems

4.1.1 Media Booting Procedures for TAC-3/TAC-4 Systems

To prepare a tape for installation:

1. Insert the tape in the DAT drive.
2. Log in as sysadmin.
3. Select the System Administration SEGMENT INSTALLER utility under the **Software** pull-down menu.
4. Select the source and click the **Read Contents** button. The contents of the tape appear in the SELECT SOFTWARE TO INSTALL portion of the SEGMENT INSTALLER window.

4.1.2 Installation Procedures for TAC-3/TAC-4 Systems

(Note: Prior to segment installation, ensure that no existing MDGRID segment is installed on the target platform. If so, select the MDGRID segment in the CURRENTLY INSTALLED SEGMENTS section of the window. Select the **Deinstall** button and follow the instructions on the screen to remove the MDGRID segment.)

To install the MDGRID software:

1. First ensure that the operating system (OS) and Kernel, with all patches, are installed. Instructions for installing the OS, Kernel, and patches are contained in the HP-UX documentation cited in Section 3.2.2.
2. Ensure that the Informix servers are **Up**. This can be checked through the dbadmin features.
3. Install the MAGRID segment from the installation tape.
   - Highlight **METOC Grid Database Segment**.
   - Click the **Install** button.

4. The INSTALL STATUS dialog box will appear, which will give software loading status in a % format.

5. Response dialog boxes will appear and ask if "you would like to customize database size settings." If NO is selected, you will be prompted for the database size in MB. Enter the size of the database, and 1/10 of that will be dedicated to the tables and 9/10 to blob space. If YES is selected, the next prompt is for the table size of the database. Enter the appropriate value. The next prompt is for the blob space of the database. Enter the appropriate value. The final prompt is for the blob page size (in KB). Enter the appropriate value.

6. An INSTALLER STATUS dialog box may appear. Enter the Informix password and click on the **OK** button. If the database is successfully created, a prompt will notify the installer. Select the **OK** button to clear the prompt.

7. Once the installation is complete, the SEGMENT INSTALLER window will appear. The **METOC Grid Database Segment** will be displayed in the CURRENTLY INSTALLED SEGMENTS section of the window.

4.2 Installation of Upgrades

Installation of upgrades will generally follow the same procedures listed above.

4.3 Installation Verification

All successfully installed segments are listed in the CURRENTLY INSTALLED SEGMENTS portion of the INSTALLER window on TAC-3/TAC-4 systems.

4.4 Initializing the Software

This section is tailored out. No initialization of the software is required.

4.5 List of Changes and Enhancements

This section is tailored out. Discussion of MDGRID features may be found in the MAGRID API Reference Manual and Programming Manual, cited in Section 2.

4.6 Important Considerations

This section is tailored out.

5 NOTES

5.1 Glossary of Acronyms

AESS	Allied Environmental Support System
API	Application Program Interface
APIRM	API Reference Manual
COE	Common Operating Environment
DII	Defense Information Infrastructure
GCCS	Global Command and Control System
IC4ISR	Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance
IMOSS	Interim Mobil Oceanographic Support System
INFXOL	Informix On-Line Dynamic Server
IP	Installation Procedures
JMCIS	Joint Maritime Command Information System
JMS	Joint METOC Segment
LLT	Latitude-Longitude-Time
MAGRID	Grid Field API Segment of the TESS/NC METOC Database
MDGRID	Grid Field Database Segment of the TESS/NC METOC Database
METOC	Meteorology and Oceanography
MIDDS	Meteorological Integrated Data Display System
NITES	Navy Integrated Tactical Environmental Subsystem
OS	Operating System
PM	Programming Manual

PS	Performance Specification
SQL	Structured Query Language
SVD	Software Version Description
TESS(NC)	Tactical Environmental Support System Next Century